

CLAIMS

1. A battery pack comprising:

a rechargeable battery,

means for indicating a remaining capacity of the battery, wherein the indicating means is coupled to the battery, wherein the indicating means utilizes power supplied from the battery, thereby indicating the remaining capacity of the battery,

a first switch electrically connecting and disconnecting the battery with the indicating means,

a first voltage detecting circuit coupled to the first switch, wherein the first switch is turned off when the voltage detected by the first voltage detecting circuit falls below a first predetermined value,

a cut-off circuit coupled to the first voltage detecting circuit, wherein the cut-off circuit cuts off the flow of current from the battery to the first voltage detecting circuit when the first switch has been turned off.

2. A battery pack as in Claim 1, wherein the cut-off circuit comprises:

a second switch electrically connecting and disconnecting the battery with the first voltage detecting circuit,

a second voltage detecting circuit coupled to the first and second switches, wherein the second switch is turned off when the voltage detected by the second voltage detecting circuit falls below a second predetermined value, wherein the flow of current from the battery to the second voltage detecting circuit stops when the first switch has been turned off.

3. A battery pack as in Claim 2, wherein the first voltage detecting circuit comprises two resistors that divides the voltage from the battery, wherein the battery pack further comprises:

a first terminal coupled to a plus pole of the battery,

a second terminal coupled to a minus pole of the battery,

a third terminal coupled to junctions of the two resistors of the first voltage detecting circuit.

4. A battery pack as in Claim 3, wherein the second voltage detecting circuit comprises two resistors that divides the voltage from the battery, wherein the battery pack further comprises a fourth terminal coupled to junctions of the two resistors of the second voltage detecting circuit.

5. A battery pack as in Claim 4, wherein the battery pack is arranged and constructed to be attached to a power tool, and the battery pack supplies power to the power tool via the first and second terminals, wherein the battery pack further comprises means for outputting a signal to the junctions of the two resistors of the first voltage detecting circuit or to the junctions of the two resistors of the second voltage detecting circuit, wherein the outputting means outputs the first signal when the power tool is being supplied with power from the battery, and outputs a second signal when the power tool is not being supplied with power from the battery, wherein the voltage of the second signal is smaller than the voltage of the first signal.

6. An apparatus comprising:

a rechargeable battery,

means for indicating a remaining capacity of the battery, wherein the indicating means is coupled to the battery, wherein the indicating means utilizes power supplied from the battery, thereby indicating the remaining capacity of the battery,

a first switch electrically connecting and disconnecting the battery with the indicating means,

a first voltage detecting circuit coupled to the first switch, wherein the first switch is turned off when the voltage detected by the first voltage detecting circuit falls below a first predetermined value,

a cut-off circuit coupled to the first voltage detecting circuit, wherein the cut-off circuit cuts off the flow of current from the battery to the first voltage detecting circuit when the first switch has been turned off.

7. An apparatus as in Claim 6, wherein the cut-off circuit comprises:

a second switch electrically connecting and disconnecting the battery with the first voltage detecting circuit,

a second voltage detecting circuit coupled to the first and second switches, wherein the second switch is turned off when the voltage detected by the second voltage detecting circuit falls below a second predetermined value, wherein the flow of current from the battery to the second voltage detecting circuit is stopped when the first switch has been turned off.

8. An apparatus as in Claim 7, wherein the first voltage detecting circuit comprises two resistors that divides the voltage from the battery, wherein the apparatus further

comprises a first terminal coupled to junctions of the two resistors of the first voltage detecting circuit.

9. An apparatus as in Claim 7, wherein the second voltage detecting circuit comprises two resistors that divides the voltage from the battery, wherein the apparatus further comprises a second terminal coupled to junctions of the two resistors of the second voltage detecting circuit.